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ABSTRACT

Practical information for using a variety of pictures in the geography classroom is provided. Although pictures which depict cultural and natural landscape conditions are readily available, the methods by which pictures should be used in the classroom to produce the greatest impact on learning need to be carefully considered by the teacher. This publication describes procedures for classifying, grading, and using pictures in the classroom for maximum results. The basic criterion for the selection and use of a picture in geography instruction is its geographic quality. Pictures may be classified as possessing primary, secondary, or tertiary geographic quality on the basis of the portrayal of cultural and natural landscape items and the geographic relationships shown or suggested. Gradation in picture study is based on the degree of interpretative ability required to make the desired use of the picture. Pictures can be used for presenting either reconnaissance or detail. Reconnaissance use may be helpful for the introduction of material, presentation of disconcerting data, diagnostic testing, and cross-country presentation. Detailed pictures may be useful for creating a learning situation, orientation, definition, interpretation, checking, summary recall or review, and testing. The still picture from photographs and slides is easier to use for teaching geographic concepts than the motion picture, and captions can sometimes be helpful. Pictures cannot stand alone in geographic study, but need follow-up study and research, interpretation, and classification. (ND)

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GEOGRAPHY VIA PICTURES

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GEOGRAPHY
VIA
PICTURES

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PREFACE

The Publications Center of the National Council for Geographic Education is especially pleased to publish this revision of **Geography Via Pictures** by Dr. Lynn H. Halverson. Although retired from active teaching, Dr. Halverson has maintained his interest and work in teaching. When a revision of his original booklet on **Geography Via Pictures** was suggested, Dr. Halverson readily and willingly offered his assistance.

It is with great pleasure that the Publications Center acknowledges the continuing contributions of Dr. Halverson to the geographic profession and extends to him our thanks and appreciation.

KERMIT M. LAIDIG
Director of Publications

NATIONAL COUNCIL FOR GEOGRAPHIC EDUCATION

Founded in 1915, "to promote geographic education and research and to secure cooperation between the various fields of geography in the public schools and colleges," the National Council for Geographic Education has grown into an organization of teachers of geography with members in every state in the United States and in many foreign countries. The distinguished editors of the National Council for Geographic Education have developed **The Journal of Geography** into the leading publication in the nation for geography teachers. The annual meetings, usually held in the autumn, bring together teachers of geography in the elementary, junior high, and high schools and in the colleges and universities from all regions of the continent in a stimulating and pleasant fellowship. The programs provided at these meetings, together with the articles published in **The Journal of Geography,** furnish an excellent cross-section of scholarship in geography. Membership in the National Council for Geographic Education is available to all whose field of interest is geography.

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PICTURES IN GEOGRAPHY

The old cliche that a picture is worth a thousand words has little place in the use of pictures in the field of geography, as this might imply that a picture can stand alone in providing functional understandings. On the other hand, in recording landscape conditions, both cultural and natural, pictures are indispensable and perhaps are the most significant of all materials in providing concrete landscape concepts.

Before going further in this discussion, it must be made clear that to use pictures adequately a teacher must possess a "landscape" and "relationship" concept or philosophy of geography. This means that the student must understand that the geographer looks upon the landscape in two aspects, the cultural or man-made environment and the natural environment.

Cultural environment includes the man-made landscape or the items of the landscape resulting from man's occupation of an area. These items when denoted by symbols on maps are given names by man, whether great cities or small villages, or political boundaries.

Natural environment includes the total natural landscape, which might begin with the sun and include all the elements of land, air, and water significant to man as he occupies the earth. These items likewise are symbolically represented on various types of maps, some of which are highly specialized.

Geography deals with these landscapes, cultural and natural, as basis for the discovery, description, and interpretation of relationships arising as man occupies areas of the earth's surface.

It is apparent therefore that the teacher and the student must consider pictures for their landscape information if pictures are to make a maximum contribution to geographic understandings. From information portrayed in the picture one can organize the cultural and natural items in their relationships to each other, and may deduce definite relationship understandings.

It was stated earlier, however, that no picture can stand alone in geographic study. For example, the apparent sun behavior condition must be read into the picture through the medium of latitudinal location. Weather and climate for the area which is shown in the picture must be understood. It must be determined further whether or not the picture represents typical conditions in the area or region studied, or is an example of some exotic or unusual item. If pictures are to be significant and valuable teaching aids to the geographer at any level of instruction they cannot be carelessly or casually used and make the contribution to geographic understandings of which they are capable.

The use of pictures in most fields of learning and at any level of instruction makes necessary some method of classification. The basis for the classification will depend upon the field of learning and the philosophy of the individual in his area of specialization. It is probable that in the same field the teacher might have a somewhat different basis for organization and selection than a research person. It is also possible that the teacher might be more selective in collecting pictures than the researcher.

In the field of geography teaching it appears that the basic criterion for the selection and use of pictures is **geographic quality.** The use of pictures of high geographic quality portraying cultural and natural landscape items aids in making geography concrete and "down to earth." Such pictures provide the basis for making sound interpretations of the landscape. If the picture does not tell the whole story, **and usually it does not,** it stimulates research and checking to determine the facts. Pictures are one of the materials upon which may be based the development of the ability to think geographically. This ability is perhaps the greatest contribution that the teaching of geography can make to the education of the student at any level of instruction.

The modern geographer through his use of landscapes, cultural and natural, as bases for the development of relationship understandings, should be the greatest user of pictures. Geography as a socio-natural science brings man's works and activities into most pictures as a basis for developing understandings of relationships.

The geologist is mainly concerned with the natural landscape as are many others in the strictly natural science field. The social scientist is more largely concerned with man-to-man relationships using relatively few pictures dealing with the natural landscape. However history may take on real meaning if students realize that events of the past have been conditioned by natural landscape items. The westward movement across the eastern mountains and plateaus becomes more meaningful when, for example, significance of the Great Valley, the Wilderness Road, Cumberland Gap, and the Hudson-Mohawk Lowlands is understood. Pictures aid in such understandings.

THE CLASSIFICATION OF PICTURES

To organize picture study for maximum results it is necessary to classify pictures upon the basis of their geographic quality. Geographic quality in pictures involves the completeness of the portrayal of the cultural and natural landscapes and their interrelationships.

In pictures of high geographic quality there may be relationships which are obvious or clear, there may be suggested relationships which must be carefully checked to insure their validity, and there may be involved or hidden relationships not at all apparent in the picture. In the latter two cases it may be necessary to investigate the validity of the suggested or involved relationships.

Failure of pictures to qualify for top geographic quality does not mean that they have no use in instructional procedures. Such pictures may have problem-raising qualities or aid in clarifying definitions which make them valuable teaching aids.

Pictures may be classified as possessing primary, secondary, or tertiary geographic quality on the basis of the portrayal of cultural and natural landscape items and the geographic relationships shown or suggested. It must be repeated that the geographic understandings of the individual brought to bear in picture study results in a high degree of subjectivity in individual judgments regarding any picture. The greater the geographic background of students and teachers the greater the interpretative power that can be brought to bear. As a result much more will be read into the picture as a basis for relationship understandings.

This ability to understand and interpret pictures grows rapidly with use once the idea is grasped and in the matter of a few weeks tremendous growth is evidenced in students at any level of instruction. Many students are enamored by the process of analysing pictures to see what is shown or suggested and checking their interpretations by research.

It will be found that there will be differences of opinion among students as to which class a picture belongs. This is additional evidence of the subjective reaction of individuals to the landscapes portrayed. Actually, such differences of opinion are evidences of active minds.

Probably the major objective of picture study in geography is the development of the ability and the desire to interpret critically the cultural and natural landscapes and the relationships arising as man occupies areas of the earth's surface. Pictures are substitutes for the actual field and can serve to check relationships observed in the field. Pictures are part of the record of

observations in the field and should be made an integral part of any field report with critical aspects of pictures interpreted in detail. Many research papers fail in this regard and the value of the included pictures is minimized.

CLASS I, PICTURES OF PRIMARY GEOGRAPHIC QUALITY

Pictures of this class show human activity or evidence of human activity in its natural setting. Their composition must show a well-balanced arrangement of items of the cultural and natural landscapes as a basis for working out geographic relationships.

Some of the relationships between the two types of items will be obvious and clear, others may be suggestive and subject to verification. Undoubtedly there are other relationships which can only be developed by reading into the picture information from the student's background regarding the regional conditions of weather, climate, landforms, soils, transportation, markets, and many other items.

Pictures of the primary class commonly fall into two types: the first showing human activity in its natural setting (Fig. 1); the second showing the works of man in their natural setting without the human workers (Fig. 2).

Fig. 1

Figure 1 shows commercial fishermen removing lake trout and whitefish from the pot of a trap net placed in Lake Superior near Marquette, Michigan. The cold waters of the lake furnish

favorable habitat for these fish. The shore is near at hand, showing that this type of fishing is carried on in relatively shallow water. The maximum legal depth for this type of fishing is fifty feet. Trap nets are set only in the less stormy summer months. Nets in such shallow water are exceedingly vulnerable to storms which could cause losses of hundreds of dollars to the fisherman.

It is apparent that a picture of this quality raises many questions that can only be solved by research unless the student can bring to bear upon the problem a specialized fund of information. No picture can stand alone. A picture can best fulfill its potentialities when research brings out the factors involved.

The producers of textbooks at all levels of instruction who insert pictures periodically in their books without any provision for intelligent use are to a large degree wasting space and money. In many texts in recent years there have been beautiful pictures included without provision for use resulting in the photographs being relatively meaningless. The mere inclusion of beautiful pictures for their esthetic contribution is not enough. It has been said that the primary objective of all geography teaching is the development of the ability to think geographically where there are geographic problems present. The ability to think should be the major objective of all education. The picture may furnish basic information for stimulating thinking just as significantly as can the printed word.

Pictures of the second type under Class I show the works of man in their natural setting without the human workers (Fig. 2). The results of the human activity are shown without the

Fig. 2

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presence of the workers. The forest in its natural state is shown in the background. At lower levels of instruction the interest of the children in the workers may detract from their willingness to get to the matter of doing geographic thinking about what is seen or suggested.

After the location of the picture is known it is necessary to read into the scene items of the cultural and natural landscape as a basis for doing geographic thinking. Such things as the species of trees, the cutting time as related to bark removal, market demand, transportation costs, and availability of labor are significant.

It should be noted that no captions have been given for these pictures. This matter will be discussed later in connection with methods of using pictures in instruction.

CLASS II, PICTURES OF SECONDARY GEOGRAPHIC QUALITY

Pictures of secondary geographic quality may equal for certain teaching purposes those of Class I quality but they do not convey as complete a landscape, cultural and natural, with which geographic thinking may be done. Pictures of this class would seem to fall into two types; the first type shows the items of the natural landscape with very little if any cultural landscape forms present of interpretative value; the second type presents mainly cultural items.

The first type (Fig. 3), shows ice-scoured hills and knobs, Lake Superior in the background, and no habitations in view. However, a railroad crosses the area near the center of the picture. The reason the railroad engineers took this route was that its use entailed less of a problem than routing the road along the rocky shore of the lake. Even so, some rock cuts were required.

Fig. 3

6

This picture (Fig. 3) conveys a concept of ice-scoured hills and knobs as one explanation of the lack of utilization. Actually some timber has been cut in this area of poor soil cover and resulting poor stand of trees. The view shows a rather typical example of the terrain of the Laurentian Shield in parts of the United States. The scarcity of visible items serving as evidence of human occupancy is reason for placing the picture in a lower classification on the basis of geographic quality. The items of the cultural landscape actually present are so hidden that without detailed research they would not serve as a basis for doing geographic thinking.

The second type of picture in this class shows mainly cultural items. Relatively little variety of natural landscape is visible as a basis for the development of interpretative relationships based upon the picture alone. Figure 4 shows an ore boat at the dock about to begin loading. Much of the boat and portions of the dock and ore spouts are shown. The only item of the natural landscape is the smooth water of Lake Superior. Alone, this picture does not tell much of a story because it shows primarily cultural items of the landscape. If the picture were part of a sequence showing iron mines, ore-carrying railroads, ore docks, ore boats, and steel mills in the lower lakes region it would give a complete relationship story involving many cultural and natural landscape items. This story might be made more intelligible by using certain pictures to clarify definitions of terms.

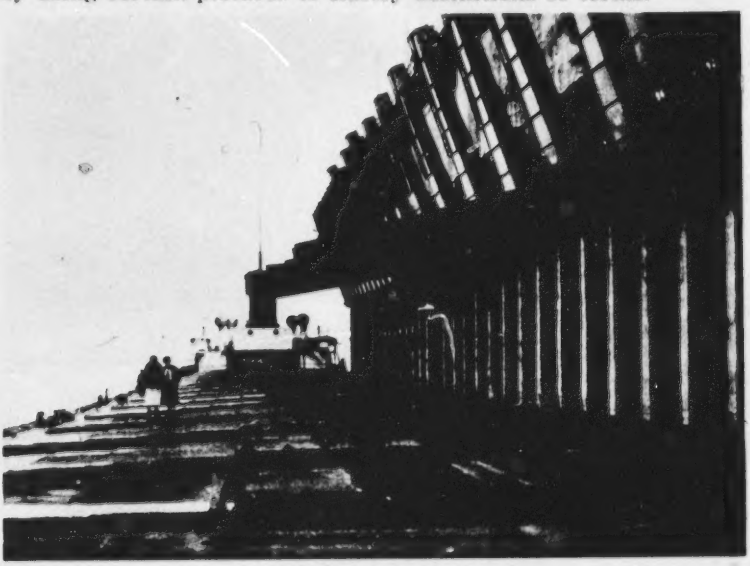

Fig. 4

7

Another example of this type of picture is an aerial photograph of buildings and street patterns of a city. Unless the landform features are exceedingly striking most of the natural landscape is masked by the cultural items causing the picture to fall into Class II. It should be mentioned that in a highly specialized use of pictures involving the stereoscopic pair and viewer much more natural landscape may become legible. However, such equipment is not ordinarily available below the collegiate level and often not there.

In summary, pictures of Class II quality are mainly suggestive and usually serve as starting points in problem solving. In advanced study they become increasingly more useful because of the definite special concepts they contribute to a detailed study of a region.

CLASS III, PICTURES OF TERTIARY GEOGRAPHIC QUALITY

Pictures of this class are the least valuable for geographic concepts but make definite contributions under certain conditions. Therefore, an awareness of their possibilities is most important. The experience background of many children and adults is often limited to the landscape items of their own locale. It may be very difficult through word pictures or descriptions to develop concepts for landscape items entirely outside their experience. In such cases pictures may be worth many words.

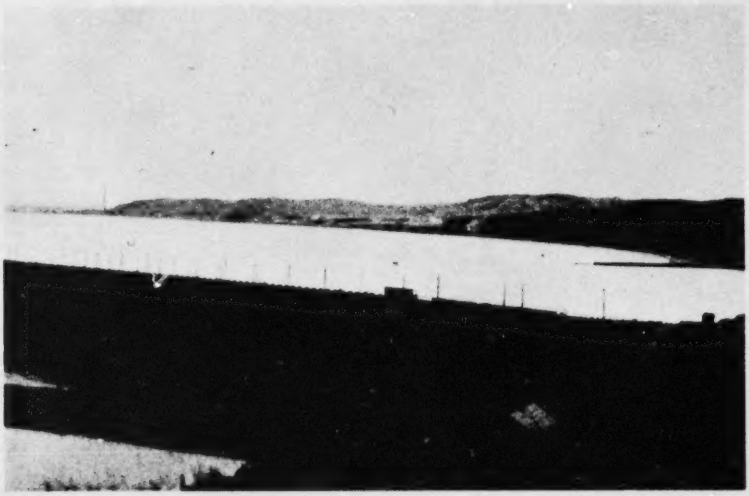

Fig. 5

8

Many textbooks show photographs of ore docks such as Figure 5. Much may be written saying that the docks are some hundreds of feet long and that each ore pocket holds 250 tons but still it is difficult to convey the idea of size to the reader. Figure 6 gives some concrete understanding of size by showing the top of an ore dock with four standard-gauge railroad tracks, an ore car, and men. This picture conveys certain comparative size concepts that possibly can best be defined through a photograph.

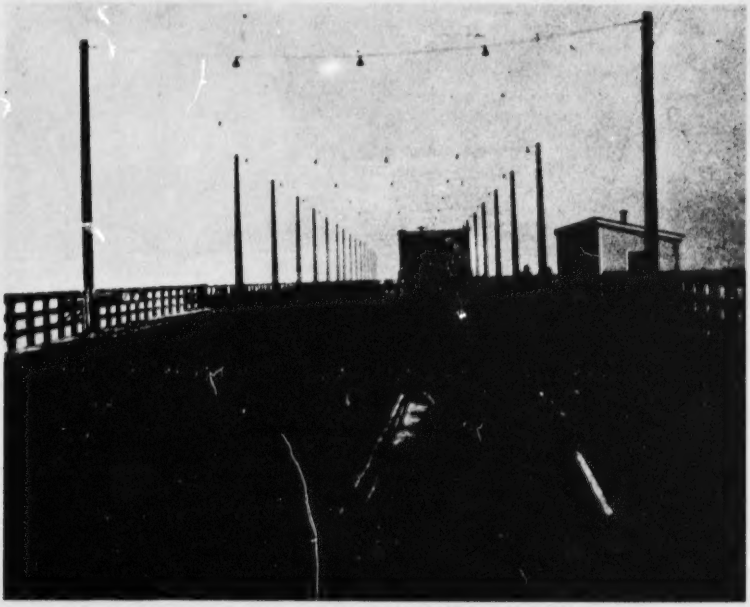

Fig. 6

Close-ups of manufacturing processes, architectural forms, roof types, planting patterns, or other items which may be so specialized as to show little of the landscape can make a contribution which is significant in developing relationship understandings. Though pictures of this class are usable on occasion it should be recognized that they must be carefully handled if their use is justified.

CAPTIONS

It is the usual practice to give captions beneath pictures used in textbooks and other publications. However, some authors of geography texts have omitted captions with the picture and given a list of captions elsewhere in the book. On the other hand, in some books very full captions are given purporting to cover the major items of significance in the pictures. This procedure does direct additional attention to the pictures. In the vast majority of cases the pictures are merely named or possibly a single item is pointed out.

Is the matter of captions of any real significance in using pictures in teaching procedures? Does it really make any difference whether captions are absent or short or descriptive or long or interpretative?

The theory behind the omission of captions is based upon the belief that captions limit the usefulness of pictures to the single idea that is suggested by the captions. This leads the student to give this item or idea a brief bit of attention and believe his consideration of the picture concluded. In contrast, pictures without captions present a problem which must be subjected to study and analysis to attain the maximum understandings possible at any given level of instruction.

The short and brief caption, like the titles in the old silent motion pictures or the narration in the present sound-track movies, gives a name or an idea only for there is not space nor time for anything more. This means that the picture is often very inadequately considered and may make little contribution to the landscape-relationship understandings of geography.

The long and interpretative caption often makes a real contribution to the understandings being developed through the use of pictures. If the textbook discussion does not include the development of understandings based upon pictures the detailed and interpretative caption is most desirable. If the caption is omitted entirely it is assumed that the text makes provision for the intensive use of the pictures.

Actually it is difficult to generalize regarding the varied aspects of captioning without considering the special methods of using pictures. The major contention is that pictures must be allowed through use to make the contribution to understandings of which they are capable. It seems safe to assume that few pictures will achieve their potential unless provision is made for their use in textbooks. It is therefore the responsibility of authors of geography texts at all levels of instruction, if pictures are to be included, to provide thoughtfully for their use.

PROCEDURES IN USING PICTURES

Most teachers who use pictures have some organized techniques or procedures. Few, however, have the time to differentiate and analyze the ways in which visual material may be presented. Therefore an enumeration and brief discussion of the procedures with some indication of the desirable outcomes is discussed below. It should be realized, however, that in practice the instructor will often combine two or more of the suggested procedures.

RECONNAISSANCE USE OF PICTURES

Reconnaissance use is in contrast with detailed or intensive use. In introducing material pictures may be made to serve very definite purposes even without a detailed analysis. Striking pictures may be used to give personality to a region about to be considered. Another use is the presentation of out-of-the-ordinary pictures presenting disconcerting data which may stimulate great interest. Disconcerting data means landscapes suggesting concepts which are much at variance with the preconceived ideas of students regarding a region.

Pictures in a unit of work may be used as diagnostic testing to check the concreteness of understandings the students are gaining. This use is time conserving in that it shows definitely in what phases of the work the students are failing. In a final review or in final testing pictures may be used with some outstanding item or relationship receiving the emphasis rather than a complete study and interpretation being the object. These procedures may be used at any level of instruction where a functioning ability in using pictures has been developed.

In several of the above uses the "cross-country" presentation is helpful. In this procedure a series of pictures crossing the country from north to south and from east to west might serve as an example. Pictures which might roughly follow the fortieth parallel and the ninetieth meridian across the nation could be used in introducing the study of the United States to show the relationships of the various regions traversed. The same group of pictures might be used later in a rapid review of the continent. The modern educational motion picture used in introducing a continent or a region follows this plan.

THE DETAILED USE OF PICTURES

The Introductory Use. The introductory use of pictures endeavors to create a learning situation. If high quality pictures are available this may be an unsurpassed method of giving per-

sonality to a region and at the same time setting the stage for investigation of the major relationships between human activities and the natural landscape.

Through the use of pictures the student should get the "feel" of the region or city and "get down to earth" regarding the significant understandings which should be mastered. Here again it must be remembered that no picture can stand alone but that the picture furnishes greater meaning to the student as he develops through research a broader background. Checking suggested relationships for their validity is one of the important procedures which the student must come to use habitually if he is to gain proficiency in using pictures.

The Orientation Use. The purpose of this use is to place the student in the region that he is studying and in particular to emphasize the situation or relative locational aspects of the study. A sun and shadow picture for some specific season of the year might serve to orient the students to latitude. A coastline or harbor picture could show an area with regard to its situation on a continent or on some inland water body. Commonly this use will orient one to some of the larger and better known landscape features such as large water bodies and related cultural landscape features, or great mountain ranges, passes, canyons, or fiords, with which man has made definite adjustments.

The orientation use of pictures is possible only if pictures of high geographic quality specifically related to the course are available. It happens that these striking landscapes are often photographed and are not as difficult to procure as it might seem. The real problem is to have the instructor understand the possibilities of this use and proceed to develop it. Often in textbooks where no provision is made for the detailed use of pictures there are photographs which lend themselves to a specific need which can be used to develop significant understandings.

Definition Use. This use of pictures is most important in giving concrete imagery for activities or landscape items entirely outside the experience of the student. In some cases a single picture may give a clear concept which lines of printed description would leave vague and indefinite. Few children are familiar with the iron ore docks adjacent to the mining areas near Lake Superior. Figures 4, 5, and 6 show such a dock and define some of its characteristics.

The use of pictures to clarify definitions is just one of several uses which might be served by this group of pictures. It is of course understood that the written word and oral discussion will further supplement the pictures.

Interpretative Use. Detailed interpretation most nearly exhausts all of the possibilities of pictures in developing the back-

ground for geographic understandings. It involves the analysing of all the items of the cultural and natural landscape, as well as the classifying of the obvious and suggested relationships with their possible significance. Such detailed interpretation furnishes the most complete understanding possible at any given level of instruction of all the items shown in the picture with their significant geographic relationships.

This procedure involves the use of all the interpretative material available dealing with the region being studied. The interpretative activity, which is geographic thinking, involves so much in the way of raising problems solvable at the level at which the work is being carried on, that in many units the picture study may serve as the major motivating device. A sequence of slides covering mining, transportation, and processing of iron ore, of which Figures 4, 5, and 6 would be a part, might motivate very well a unit dealing with the Upper and Lower Lake regions.

Detailed Checking Use. This use comes during the consideration of a unit of work and involves the use of pictures to determine the understandings of the content developed by the students. The extent of this use depends upon the difficulty of the material covered and the time available. However, if the needed pictures are available this may be one of the most efficient means of checking depth of understanding.

For geography to be meaningful to students concrete landscape imagery should be developed. The detailed checking use, especially with groups inexperienced in the use of pictures and weak in concrete concepts, is most worthwhile in this development. The use of pictures and maps together in this type of checking is often more helpful than using either alone.

Summary Recall or Review. In summary recall pictures may be used: (1) for the actual visual facts which they give regarding a region and the geographical relationships shown or suggested; (2) for the visual imagery which they stimulate the student to reconstruct regarding the geographic relationships and facts having geographic quality characteristic of the region of which the picture shows a part; (3) for the interpretative activity which will be stimulated by the realities of the picture and recalled from the visual imagery which the picture motivated.

Use in Testing. If one teaches with pictures it is logical to test with pictures when they are the best medium in a definite situation. Pictures may be used in testing to check the geographical understandings students have gained. Thus, understandings gained regarding the weather and climate of a region may be checked by showing a picture of natural vegetation or crops and by asking the student to discuss the climatic conditions to which the forms in the picture are related. If possible, pictures which

the students have never seen in the study of the region should be used in testing. In such testing definite questions should be asked which bring out relationships.

One difficulty in using pictures in testing lies in the cost of procuring a sufficient number of pictures so that each child may have a copy. This problem may be met by using pictures in the textbook. The interpretative work may be done with certain pictures while omitting one or two even though they are of high geographic quality. Later the omitted pictures may be used in testing. However, students will become accustomed to this technique if used too often.

Another method in testing is to use a set of different pictures with questions attached. These can be rotated around the class. The questions for the different pictures should be of the same time-consuming difficulty, so that the time allowance given may be fair for all. Other questions than those based upon pictures may be used as well in this type of testing. The test may be objective or subjective with the answer not to exceed one line in length.

The time allowance for each question should not exceed two minutes with one minute preferable at higher levels. The reading ability of the students must be considered so that questions be understood in the time allowed.

If, for example, the absolute minimum an instructor may expect to have in a class is thirty, thirty questions should be prepared. If there should happen to be on some occasion thirty-three in the class, simply scatter three blank cards in the set. All will answer the thirty questions, though at all times three will have blanks and will have a "rest period." This "moment of relaxation" appears to have an excellent psychological effect during the test.

SUMMARY

In the foregoing discussion of special uses of pictures close distinctions have been drawn between uses. In actual practice the methods of use may grade into one another so as to give a combination of uses in one procedure. All of the special uses are capable of an infinite number of variations. However, it appears desirable to isolate the various methods in ones own mind so that objectives may be better kept in view thus making possible a more definite check upon the concrete understandings gained by the students.

To use pictures successfully the teacher must be constantly aware of the following:

1. Every student should have a picture. If the text used has pictures of high geographic quality this requirement is

met. Projection of pictures for the whole class automatically solves this problem.

2. The student must have something definite to do. There may be questions on the pictures or question slips given out with numbers corresponding with the numbered pictures.
3. The student must have a way of expressing his findings. Upon the questions asked depends the geographical thinking done and the geographical significance of the findings. It is preferred that the students reaction be written, **not oral.** Unison answers are useless.
4. There must be a practical check, preferably a selfcheck, which is not time-consuming.
5. Some provision must be made for the student who always finishes first. Variation in ability presents more of a problem in work with pictures than in some other types of work. Superficial work must be discouraged. A few extra pictures of greater than average difficulty may help in the case of the rapid worker.

THE GRADATION OF PICTURES

Even though differences in geographic quality of pictures are recognized it is difficult to classify these differences. A picture presenting interpretative difficulties to one might not do so to another who has had contacts with the items shown in the scene. It is necessary to recognize that gradation in picture study is based upon the degree of interpretative ability required to make the desired use of the picture. Gradation actually is an expression of the information and experience which the student can bring to bear in the study of the picture.

The same picture might be used in the fourth grade and in high school. In the fourth grade it would be used only for the obvious items which are portrayed with simple direct relationships emphasized without a great deal of study of supplementary material. The same picture used in high school by students experienced in picture study would involve a more detailed interpretation and problem raising activity which would be impossible at the lower level or with students without a background knowledge of landscape gained through work with pictures. College students with their broader background of information and experience will gain the most from the use of pictures.

Pictures rank next to actual observation in giving concrete concepts regarding landscape items and their attendant human activities. The teacher of geography attempting to develop understandings of landscapes and related human activities, or reason for their absence, is tremendously handicapped if pictures are not used wherever and whenever they can function to make learning experiences more worthwhile.

Figure 7 can be used to illustrate certain aspects of gradation. This picture shows an iron ore carrier "locking up" from the level of the St. Marys River at Sault Ste. Marie, Michigan,

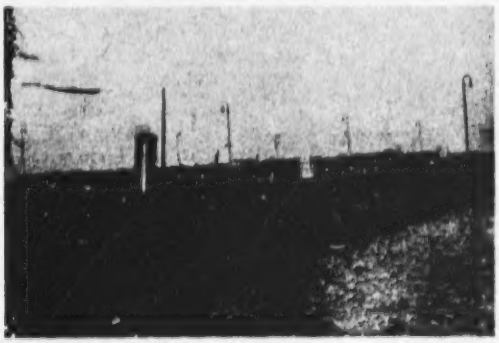

Fig. 7

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to the level of Lake Superior. Only the mast, funnel, and ventilators are visible. In the foreground is another lock with the water level approximately that of Lake Superior above the rapids. In the distant background is the Canadian shore and Sault Ste. Marie, Canada.

This picture might be used at the fourth grade level for definition purposes to show something of locks in canals. The St. Marys rapids as symbolically represented on some maps could be used to explain the need for the canal, the busiest in the world. The photograph indicates concretely the water levels typical of locks wherever found.

At the fifth grade level in the regional study of North America much added background could be developed to bring out the significance of this link in the Great Lakes waterway in moving iron ore, wheat, and coal cheaply to their varying destinations. At this level only the simple and direct relationships involved in the movement of commodities from one region to another will be emphasized. These understandings are as important in history and/or social studies classes as in geography.

The important thing in this situation is that a lock becomes a real man-made landscape item in the experience of the student rather than a little understood abstraction. As a result it serves as an interesting item with which geographic thinking may be done.

At higher levels of instruction this picture and others could motivate discussions of mineral resources, inland water transportation, waterpower, and regional interdependence. It might be used in a sequence which also would include Figures 4, 5, and 6.

Figure 8 represents quite a different landscape. It shows a section of United States Highway No. 54 south of the Lake of the Ozarks, Missouri, in 1939. The important fact in this picture

Fig. 8

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is the rail fence which would be the item emphasized in the fourth or fifth grade. The rail fence, made of local low grade timber, is a relic of the past in general.

At higher levels of instruction it might be brought out that this is a "ridge" road in the hilly Ozark country and the whole matter of the problems of utilization of such areas could be developed. The fact that the scene is close to the Lake of the Ozarks, around which a tremendous recreational development has occurred, is significant. It can follow that Bagnall Dam on the Osage River is discovered as the reason for the lake.

At this juncture it should be emphasized that many pictures should be dated. If not dated, the students are apt to date them with a loud laugh and the instructional situation may be damaged. Figure 8 serves a real purpose if adequately used even if a student in class may have toured Highway No. 54 recently and found a high grade "blacktop" or concrete surface rather than the old "seal-coat" of 1939. In the road improvement process the rail fence may have disappeared.

It is very common for students to criticize pictures in texts or projected slides as being inaccurate and out-of-date. In these days of general travel by the populace of the United States, with cameras in general use, it is not unusual for families to have collections of colored slides more up-to-date than those in the texts or in the school slide collection. At the college level many returning servicemen have slides showing a variety of places over the world. It must be acknowledged that many of these pictures are not of high geographic quality and at best may serve a definition use, if they are usable at all.

Older pictures may serve to emphasize change and progress if their use is planned. By planning the instructor prevents distracting reaction to a picture out-dated in some aspects but in other aspects significant in developing worthwhile understandings.

STILL AND MOTION PICTURES

Elementary geography textbooks published before 1900 were plentifully supplied with pictures. One such book originally published in 1898 and revised in 1907 had 275 photographs, many of them of high geographic quality. There were study questions referring to maps without references covering the pictures even though in some cases the pictures might make some contribution in the realm of map study.

Some will remember the stereoscopes and stereoscopic pairs of pictures present in many homes and used to entertain adults and children fifty or more years ago. The early copies of the **National Geographic Magazine** contained few pictures but some maps with Volume XI of 1900 as an example. There was a notable increase of pictures in Volume XIX in 1908, and by 1913, Volume XXIV was almost as profusely illustrated as is the magazine at present. This magazine is mentioned because it has long been valuable to teachers as a source of pictures, many of which are of high geographic quality.

The portable 35 millimeter silent motion picture projector was in fairly general use in the early nineteen-twenties. Actually these bulky machines were seldom taken to class rooms but their use in school auditoriums increased rapidly. The 16 millimeter portable silent projector followed quickly and the 16 millimeter sound projector using film with sound track was in common use by the middle nineteen-thirties in schools and colleges. Educational sound films came almost immediately, but in some cases their quality left a lot to be desired. Techniques in using films were slower to come and in many cases today film presentations are of the "hit and run" variety.

THE STILL PICTURE

It is the feeling of many that the still picture offers the greatest value for geographic concepts, whatever the level of instruction. They make landscapes, cultural and natural, come alive to serve as a basis for developing sound geographic understandings. Since the time element is not restrictive as is the case of the motion picture, the student can analyze carefully all the elements in the situation and can do the research necessary to make the picture fully meaningful.

The general availability of the still picture is another factor of significance. From newspapers, magazines, and many other sources pictures are available at very small cost. Students may supply pictures to schools at no cost except that needed to provide proper filing and storage which is most essential. The pro-

duction of specialized pictures as geographic teaching aids has been neglected in the United States.*

The 35 millimeter colored slide and film strip have largely taken over in the area of projected pictures. There are many sources of pictures and thousands of pictures available from a number of producers specializing in pictures to be used as aids in teaching geography. Today teachers may use slides specifically adapted to their own teaching needs. The stereoscopic 35 millimeter camera is used by some and for close-ups is particularly effective.

If one travels without a camera or encounters unfavorable weather he can purchase colored slides showing landscapes of local areas in most localities. Unfortunately many of these slides show "scenic" rather than geographic items of the landscape. In other words, the pictures show striking natural items without showing much of the basis for the human occupance of the area. However, careful selection can produce pictures of either Class I or Class II geographic quality that may be excellent teaching aids.

Geographic quality in pictures and use procedures have already been discussed in detail. However, a warning is necessary in using colored slides. Pictures using certain types of film or reproduced slides or filmstrips may show striking color effects that are not true of the actual scene. Students need to be made aware of this fact.

Another hazard arises from the use of some pictures striking in color. They may be so strikingly colored that it is difficult to direct the attention of the students to the rather prosaic matter of the study of landscapes as the basis for geographic thinking. It goes without saying that this geographic approach should be brought about tactfully. Some discussion of the true colors of the items shown as contrasted with the colors presented might be necessary.

The opaque projector has the advantage of being capable of projecting almost anything on the screen. It should be able to project a minimum size of 8½ x 11 inches and should have a minimum power of 1000 watts. This type of projection requires a darker room than any other common type of projection and is bulky and difficult to move around even when made of light metal. It has many specialized educational uses, for example, projecting a corrected paper before a class so that all can see the mistakes and corrections.

*In 1937 the Wheeler Publishing Company of Chicago published the book *Our Country From the Air* by Edna E. Eisen. This was an excellent book of pictures covering the landscapes of the United States, with a page of text for each picture. There are eighty-four pictures included, with study questions. All pictures are of high geographic quality and all types of important human activities are covered.

THE MOTION PICTURE

The motion picture, silent and sound, has been hailed as the answer to the teacher's prayer. The fact is that the sound motion picture is the most difficult of any of the visual aids to use adequately. Much of the "hit and run" use of motion pictures today borders upon entertainment and may be looked upon as a sort of entertainment by students and thus be a waste of time and money. In some aspects the addition of the sound track to film aggravated the situation. All will admit that students from kindergarten through college are intrigued and entertained in varying degrees by motion pictures and only a few are bored.

Even though the difficulties in effective use of motion pictures in geography are always present, they can be minimized if the instructor using this teaching aid has an awareness of the problems. Unless precautions are taken the narration on the sound track immediately limits what the student will see and comprehend. The most serious problem in many cases is administrative and involves film ownership versus rental. The problem is more aggravated in small educational units than in large ones where most of the films may be owned. The common procedure is to order films months ahead for given dates. The film may not be available for the requested date or the work of the class may not be at the stage where the film aids in creating an effective learning situation. Yet, the film must be used at once and returned. This means the instructor has to make the best of a bad situation by using the film days ahead of the desirable time or possibly using a reconnaissance film for a summary recall or review purpose.

If a film is worth showing once it is probably necessary to show it more than once to obtain the potentially optimum results desired. Common practice in the handling of rental films permits one showing possibly in a number of places in an institution or school system. There is a trend now evident that may lead to films being available for longer periods. In short, ownership is the ideal if high quality intensive work is to be done with motion pictures.

It should be interjected here that theoretically most motion picture projectors can be stopped and a single frame shown. Actually this is seldom done and in many projectors the protective device which keeps the heat of the lamp from damaging the film also cuts off so much of the light that the projected frame is poorly shown.

It is almost trite to say that in teaching the best medium available should be used at the juncture where its contribution may be the greatest. It is obvious that if a better presentation of geographic material can be made with colored slides at a frac-

tion of the cost as compared with motion picture film, then slides should be used.

Thousands of "free" films of high quality are available from corporations and governmental agencies. The use of such films as teaching media requires great care and selectivity. Thorough preparation by the instructor is the first prerequisite in any use of pictures of any kind but with the motion picture it is most critical because of the rapidity with which landscapes are presented. Every possible eventuality in connection with the screening of the picture must be considered. This should mean previewing the film at least three times. The first viewing should be introductory, the second should be with the sound turned off, to see whether more or less is "seen" without the narration, and the third should be on a "stop and go" basis, with notes taken on the significant sequences.

It is possible that the first time the instructor has seen a film the decision may be made that the film is not an effective medium in developing the desired understandings at this particular place in the instructional program. Unfortunately under these conditions many teachers still will screen the film rather than "disappoint" the students.

Ideally, projection of any type should occur in the usual meeting place of the group. It should be looked upon as a teaching aid such as the blackboard, the map, or the written or spoken word. Under the best conditions there is no "holiday" atmosphere when pictures are used, whatever the type.

The motion picture should conform overall to the standards set up for geographic quality in pictures. Types of use discussed earlier can be adapted to sequences of or larger portions of films. It is probable that the introductory and reconnaissance uses are the most effective. For summary recall and review the film likewise may be effective if the procedures are well planned. As in any type of picture, only with study and research can the motion picture be made to tell the whole story.

Many techniques and variations of them have developed in using the motion picture. It is axiomatic that students who view a picture should have something to do relating to the presentation. Ideally, the work of the students should be presented in writing or given in well-organized oral reports. Too often the showing is followed with some spontaneous discussion and the matter is dropped without research and the development of sound and worthwhile understandings.

On the other hand, instructors endeavoring to develop understandings of landscapes as a basis for geographic thinking occasionally do intensive work following the film. After the first showing some instructors run the film with the sound off asking the students if in the showing they saw items not mentioned in

the narration that they wished to know more about. In some cases students are encouraged to criticize the narration. After a third "stop and go" presentation, coupled with thorough discussion, research problems may be assigned to groups of students. Finally the group may decide that it would like to provide its own narration. When this intensive use is encouraged the film must be shown many times so that the novice narrators can develop their talks. It is clear that this kind of a procedure could be developed only at and above the later elementary or junior high school level.

It is certain that this type of intensive use could develop only with a film that met the requirement for developing such intensive use. Few films would meet the requirements. If films were used only when they approximated being the best media the quality of instruction would be greatly improved.

The motion picture as an educational tool is here to stay. The problem facing all persons in the field of education is to see the medium in its proper perspective in relation to other visual aids and other methods of presentation of material. The problem is to retain the best in motion pictures and to plan thoughtfully the use of carefully selected pictures that show geographic relationships.

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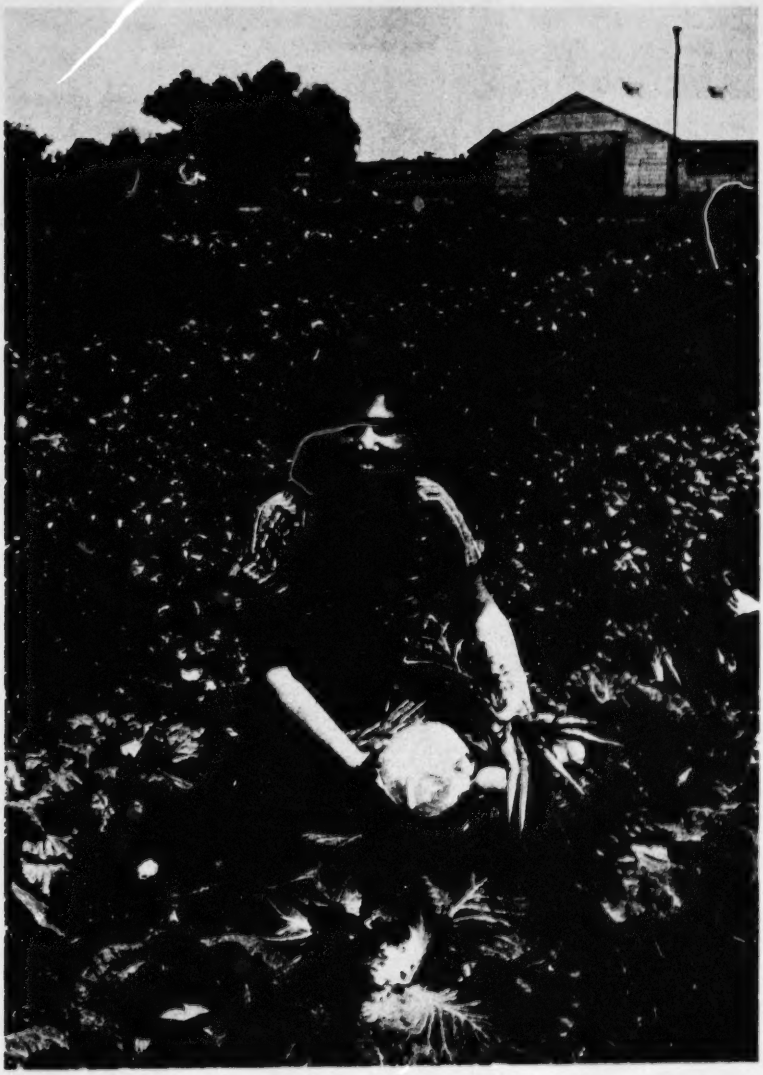

Pictures are one of the most useful teaching devices for the geography instructor. Here the girl holds beets, carrots, onions, and a cabbage. In the background is the end of a 3,000-unit broiler house. What is the man-land relationship, or what is the interrelationship between the physical and cultural environments?

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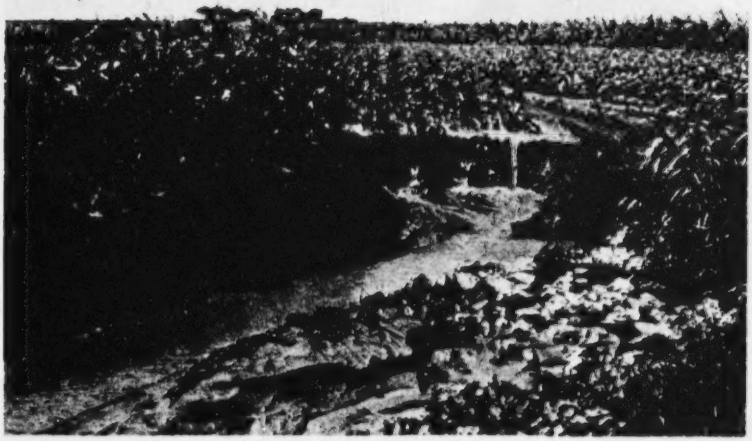
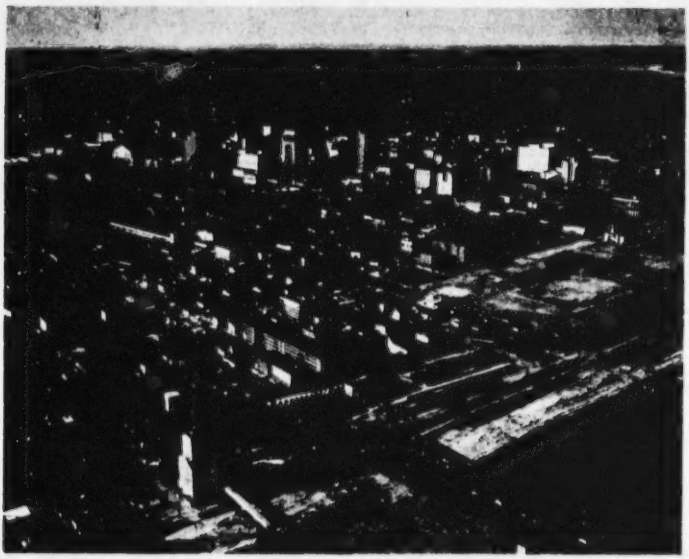
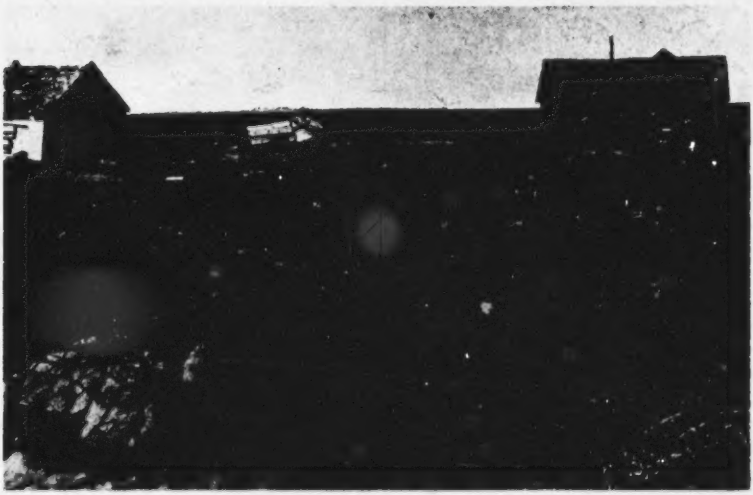


What conclusions can be drawn from the study of this picture? Water is flowing from back of the unprotected terrace outlet. As a result the outlet is gullying back into the field and the road ditch is sloughing. What conclusions can be made about climate, conservation, land utilization, terrain, human interest?

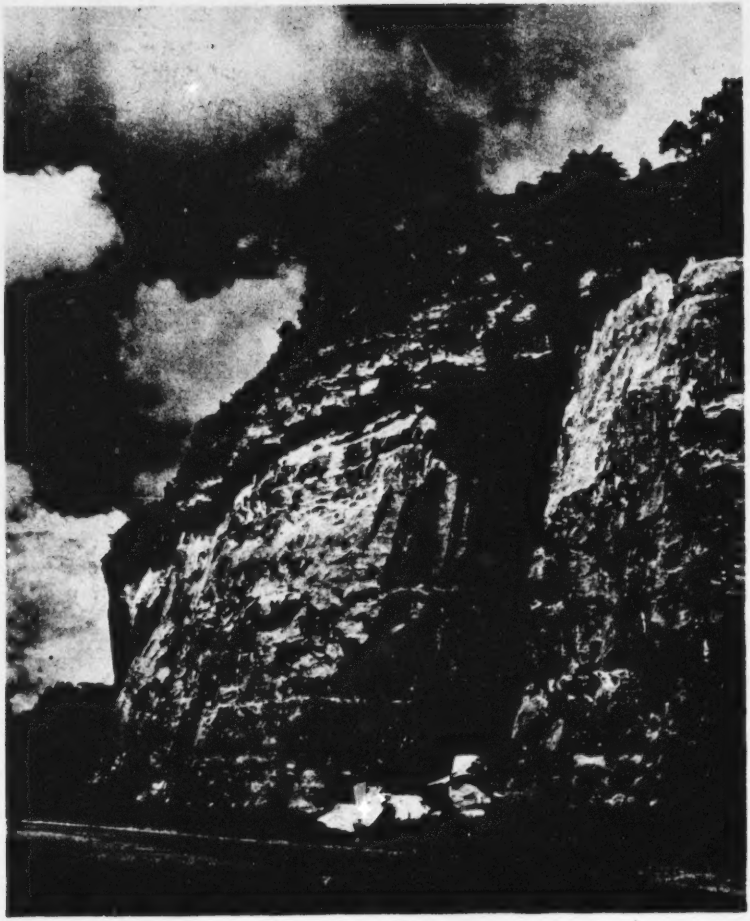


How much cultural geography is indicated by this picture? Notice the various methods of transportation, the intensive land utilization, the comparative size of buildings, and the remains of the natural environment. The city is St. Louis.

How could you judge the age of this picture? What is the climate of the area? The population density? The landforms? The cultural development? The picture was taken near the edge of the Nashville Basin.



What does this picture indicate as to topography, climate, natural vegetation, population movement, land utilization, and its location? How would you classify this picture?



This highway passes man-made silica bluffs near Pacific, Missouri. How would you classify this picture? What different studies could be made of the natural features shown?

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